Book Review

The Chemistry of Gold Extraction (2nd edition)
John O Marsden and C Iain House
SME
Littleton, Colorado, USA
ISBN-13: 978-0-87335-240-6
ISBN-10: 0-87335-240-8

Prior to reading my review of the book, readers should be warned that I have been using the first edition of The Chemistry of Gold Extraction since I purchased it in 1993, thus, I am deeply familiar with the book content, and if this first edition was a must for gold users, this second edition just improves on the older one.

The book contained 12 Chapters, distributed as: Historical Developments; Ore Deposits and Process Mineralogy; Process Selection; Principles of Gold Hydrometallurgy; Oxidative Pretreatment; Leaching; Solution Purification and Concentration; Recovery; Surface Chemical Methods; Refining; Effluent Treatment, and Industrial Applications. Also, two appendixes named: Symbols and Abbreviations, and Units and Conversion Factors complete the book along with the miscellaneous Sections: Selected Bibliography, Index and About the Authors. All in all, a very complete book.

Each Chapter is divided in various Sections and Subsections in order to facilitate the read of the book, and this read is further helped with the inclusion of a good number of tables, figures, etc., which undoubtedly help to understand what one is reading. At the end of each chapter, a comprehensive Reference Section helps to further complement or extend what is said in the book.

Comparing with the first edition, a number of chapters have been left relatively untouched, whereas others, and accordingly with the trends found in these ten years, see a more significant revision. Example of the latter is, Chapter 5, which is updated to reflect trends in pressure oxidation, nitric acid treatment, biological treatment and roasting of gold-bearing materials. Chapter 6 presented new developments in cyanidation and chlorination operations, and also on the thiosulfate leaching chemistry, which seemed to be one of the modern trends in the leaching of gold raw materials, though cyanidation is still and by far the first choice for gold leaching.

Based on the above, Chapters 7 and 8, Solution Purification and Concentration, and recovery, respectively, are writing reflecting the advances purification, concentration and recovery of gold from non-cyanide systems; whereas in Chapter 9, recent advances on the flotation of gold-bearing sulphide minerals and free gold is included.

Chapter 11 is related to the Effluent Treatment, this is a topic of a wide interest due to the more restrictive legislations in which we live, and in this case the original chapter was updated and expanded with the inclusion of several emerging options for the treatment of these effluents; probably in this chapter, I missed a subsection which comments about the use of liquid membranes in the treatment of these liquid effluents; liquid membranes are these days more an academic approach than of a practical use, however they are recognized as of a potential use in the (near) future. The huge amount of literature devoted to this topic during these last years, will probably merit a subsection about these technologies.

Finally, Chapter 12 deals on “Industrial applications”, and this includes data of modern process plant flow-sheets, i.e. process descriptions and flow-sheets have been provided for more than forty gold operations worldwide.

Thus, this is a book written for gold professionals with a wide spectrum of potential users: professionals, researchers, academia and also advanced students, I am sure that each one of the above will find the book content exciting and of a great interest. Highly recommended.

FJ Alguacil
July 2006

Editor’s note: This book can be purchased for US$159 from the publisher, SME (SME members $129) through its online bookstore www.smenet.org or by e-mail to Rosa Guzman at Guzman@smenet.org